ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

During scoping and the public workshops, it was suggested that other exploration/development scenarios be analyzed in the EIS. For the reasons listed below, BLM determined that these other scenarios are not reasonable and they were not analyzed further in the EIS.

Federal No Action Exploration/Development Scenario

During scoping for this project, it was suggested that a development scenario be considered that would evaluate impacts of a prohibition of further development or exploration on Federal lands and minerals. Under this scenario, exploration and development would continue only on private and state lands and minerals. After review of the leases that have been issued to the operators for Federal minerals and for the reasons discussed under the No Action Alternative, the BLM determined that this alternative was not reasonable.

40-Acre Well Pad Exploration/Development Scenario

The operators believed that in parts of the PAPA it may be necessary to locate well pads on 40-acre centers. In these areas, 16 well pads per section would be necessary to efficiently and economically drain the reservoir. One way to evaluate potential impacts from development would be to apply this 40-acre well pad scenario to the entire PAPA. However, such a "worst-case" approach would result in the installation of nearly 5,000 well pads in the project area. Drilling of this number of wells would never happen for a number of reasons. First, the geology of the PAPA and the results of wells drilled by the operators to date indicates that gas development may be concentrated on a relatively narrow band centered on the crest of the anticline. Although it is anticipated that well pad density may reach 16 per section on portions of the crest of the anticline, well pad density is generally expected to decrease with distance away from the anticline crest. Off the anticline it is generally believed that less wells are likely. BLM believes a few hot spots may occur on the flanks of the anticline but that overall well densities off the anticline will remain relatively low. Based on these facts, the BLM determined that this alternative would grossly overstate potential impacts from the project and the alternative was dropped from further consideration. Not conducting worst-case analysis is consistent with CEQ regulations. CEQ withdrew all reference to worst-case analysis from their regulations several years ago.

320 or 640-Acre Well Pad Exploration/ Development Scenario

Based on comments received during scoping and at the workshops, BLM also evaluated the possibility of restricting the operators to only 1 or 2 well pads per section. Some have termed this restricted well pad density the "Conservation Alternative." However, such a restriction would exceed the ability of the operators to drill and complete successful wells with adequately spaced bottomholes sufficient for complete drainage of the tight sands found in the PAPA. BLM has concluded that limiting the number of well pads to less than 4 per section, based on what is currently known about the technical limitations of directionally drilling wells, may not be technically feasible and meet the objectives of the applicants permit. The only place in the PAPA where mitigating opportunities in Chapter 4 recommend limiting well pads to less than 4 per section is in the Sensitive Viewshed/Breaks area near Pinedale. Because this area is small, with productive area likely being confined to the 2-mile wide band on the crest of the Anticline, and because potential impacts were judged to be particularly severe, BLM analyzed well pad density at less than 4 per section.

Much of the controversy surrounding this project is based on what BLM can do to limit surface disturbance and the associated impacts in the project area. It is clear that one of the fundamental goals of NEPA is to explore alternatives that reduce impacts. The Council on Environmental Quality (CEQ) has provided guidance on analysis of alternatives. In that guidance, CEQ addresses the question *"if an EIS is prepared in connection with an application for a permit or other federal activity, must the EIS rigorously analyze and discuss alternatives that are outside the capability of the applicant or can it be limited to reasonable alternatives that can be carried out by the applicant?"* In response, CEQ stated *"...the emphasis is on what is 'reasonable' rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical and feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant."*

In determining the scope of this analysis, BLM evaluated whether limiting the operators to 1 or 2 well pads in each section was practical and reasonable from a technical and economic standpoint. An overriding concern that had to be addressed was the fact that the Federal leases give the operators the right to remove the leased resources in a leasehold subject to existing law and regulation. Restrictions that can be imposed on an operator are addressed in 43 CFR 3101.2. Reasonable measures may be required to minimize adverse impacts to other resource values, land uses or users.

The BLM must also require *"that all operations be conducted in a manner which protects other natural resources and the environmental quality...and results in the maximum ultimate recovery of oil and gas"* (43 CFR 3161.2).

BLM interprets these seemingly inconsistent directions to mean that the agency must provide reasonable and effective mitigation to prevent unnecessary and undue degradation, but cannot unreasonably infringe on the lessee's existing rights. Further, BLM considers the economic removal of the leased resources in the leasehold a right conveyed to the lessee, subject to the terms and conditions of the lease. In summary, BLM has concluded that mitigation of impacts in the PAPA must be reasonable and not restrict the operator's ability to place wells in each of the 40-acre spaced bottomhole locations.

Requiring the operators to develop the mineral leases with just 1 or 2 surface locations per section would leave much of the leased resources in the leasehold unrecovered. Placing a single well pad in the center of a section would require directionally drilling offset wells which deviate approximately 2,800 feet. Two well pads per section would require 2,100 foot deviations. The risk of mechanical failure would increase as would the cost of drilling the wells. Therefore, BLM has concluded that it is not reasonable to expect the operators to develop the natural gas resource in the PAPA from 1 or 2 well pads per section.